

Section 1. System / Equipment Description

This manual contains important information about the equipment H2K Technologies, Inc has supplied for this project. Specific operation and maintenance information for individual components or systems can be found in the numbered sections. If additional information is required, please call.

The appendices contain the original equipment manufacturers' operation and maintenance manuals, specification sheets, modeling, etc.

Equipment Description:

The below is a list of equipment supplied by H2K Technologies Inc. for this project, more specific information on most of these items can be found in numbered sections of the manual.

Extraction Equipment

Soil Vapor Extraction Equipment

- (1) SVE manifold with 6" main and (8) 3" takeoffs, includes:
 - Schedule 80 PVC header and fittings, thread adapters as required
 - (8) Sample ports, 1/4" brass ball valves
 - (8) 3" PVC ball valves
 - (8) 3" Dia x 12" Clear PVC site glass with unions for removal and cleaning
 - (8) 3" Camlocks – female type "B"
- (1) Moisture separator, **H2K** model VLS 100
 - Tangential inlet and demister for 99% + moisture removal
 - Carbon steel construction, enamel external finish
 - 17" Hg vacuum design rating
 - 100 gallon total capacity, 55 gallon holding capacity
 - Polypropylene demister element
 - PVC site glass with ss High/high-high & low level switches and union for easy removal
 - 1" Drain valve
 - Vacuum gage, on separator inlet
 - Sample port on separator inlet
 - 2" Bleed valve with filter/silencer on discharge
- (1) 4" inline filter, Solberg model CSL-335P-400 with 10 micron replaceable element
 - Vacuum gage on filter inlet and outlet
- (1) H2K model RGN909 soil vapor extraction system
 - Blower, Rotron EN909, regenerative blower
 - 15 HP, 208-230/460 VAC, 3Ø, EXP motor
 - 400 icfm at 63" wc vacuum
 - Aluminum casing and impeller
 - Integral inlet & outlet silencers
 - Sample ports on blower discharge
 - Temperature gage on blower discharge
 - Vacuum relief valve on blower inlet, Rotron 523230
 - 4" Silencer on blower discharge
- (1) Condensate pump, Meyers model CT-05 transfer pump
 - 10 gpm @ 72' TDH
 - Cast iron bronze fitted

3/4 HP, 208-230VAC, 3Ø, EXP motor
Check valve, throttle valve & pressure gage on blower discharge

Free Product Recovery System

- (1) Compressor, Gardner Denver VR3-6 two stage splash lubricated reciprocating compressor
 - 3 hp, 208-230/460 VAC, 3Ø, EXP motor
 - 10 icfm capacity at 135 psi
 - NEMA 1 pressure switch
 - 60 gallon vertical ASME reservoir tank
 - Automatic condensate drain
 - 5 micron coalescing filter with gage
 - Regulator
- (1) Product storage tank, 300 gallon, UL 142 double wall, welded steel horizontal tank
 - Emergency vent, normal vent with 10' extension stack
 - 39" Dia x 76" long horizontal tank with saddles
 - Product tank is to be mounted outside of trailer**

Groundwater Treatment Equipment

- (1) Water influent manifold with 3" main and (2) 2" takeoffs, includes:
 - Schedule 80 PVC header and fittings, thread adapters as required
 - (2) Sample ports, 1/4" brass ball valves
 - (2) 2" Brass gate valves
 - (2) 2" Brass check valves
 - (2) 1.5" Water flow meters, Kent C-700, total gallons
- (1) H2K Technologies model DTA 16 Diffused Aeration Tank, each including:
 - 304 Stainless steel welded construction
 - (16) Total Aeration chambers (2) Sets of (8) chambers in parallel
 - (32) Non-fouling 304 Stainless Steel aeration diffusers
 - Quick connections for easy lateral removal
 - Counter current water and air flow to provide maximum flow path across each aeration chamber
 - (2) Hinged 304 Stainless steel covers
 - provides easy access to aeration chambers and diffusers
 - Off gas nozzle with polypropylene demister element
 - (1) Pump out clearwell
 - (1) 6" gravity drain connection
 - (1) New York Bower centrifugal blower model 2306A
 - 1280 cfm @ 38" wc
 - 15 hp, 208-230/460VAC 3 ph, EXP motor
 - Steel blower housing with aluminum wheel
 - Interconnecting ducting to diffused air inlet
 - Site glass with ss high/high-high-low pump out level switches
 - Low blower pressure switch
 - Pressure gage on sump vapor space

Note:

1. Air stripper will treat 100 gpm water with 500 ppb Benzene to less than 5 ppb, 2000 ppb Toluene to less than 40 ppb, 2000 ppb Ethylbenzene to less than 40 ppb, 12000 ppb Xylenes to less than 40 ppb.

(1) Discharge pump, Meyers model 150M end suction centrifugal pump

100 gpm @ 60' TDH

Cast iron bronze fitted

3 HP, 230/460VAC, 3Ø, EXP motor

Check valve, throttle valve, pressure gage and sample port on discharge

Controls

(1) Control System

For operation on 208 VAC, 3Ø, 4 wire incoming electrical service. To control 15HP SVE blower, 3 Hp air compressor, (2) 3hp well pumps, ¾ hp transfer pump, 15HP DTA/air stripper blower and 3 hp discharge pump. Furnished mounted and wired inside trailer. To include:

QTY DESCRIPTION

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| 1 | Enclosure, NEMA 4, 36"h, 36"w, 12"d with inner door for switches and indicators |
| 1 | Power distribution terminal block (65-335A) 3 pole; L1, L2, L3 |
| 1 | Power distribution terminal block, 1 pole; Neutral |
| 1 | Motor starter: Contactor 23A FLA/Overload relay 5-15.0A, 3Ø; air compressor |
| 1 | Motor starter: Contactor 45A FLA/Overload relay 18-48A, 3Ø; SVE blower |
| 1 | Motor starter: Contactor 23A FLA/Overload relay 5-15A, 3Ø; well pumps |
| 1 | Motor starter: Contactor 23A FLA/Overload relay 5-15A, 3Ø; pump |
| 1 | Panel board 230VAC 3phase in NEMA 3R enclosure mounted next to control panel, includes: |
| | (3) Circuit breaker 208V 3P20A 10K; well pump, discharge pump |
| | (1) Circuit breaker 208V 3P10A 10K; pump |
| | (1) Circuit breaker 208V 1P15A 10K; dryer |
| | (1) Circuit breaker 208V 3P30A 10K; air stripper blower |
| | (1) Circuit breaker 208V 3P50A 10K; SVE |
| | (1) Circuit breaker 208V 3P20A 10K; air compressor |
| | (2) Circuit breaker 208V 2P20A 10K; heaters |
| | (2) Circuit breaker 208V 3P10A 10K; vent fans |
| | (4) Circuit breaker 208V 1P20A 10K; outlets, lights |
| 7 | Switch; three position; Hand-Off-Auto with integral Run (green/LED) indication |
| 5 | Light (red/LED); alarms |
| 1 | Pushbutton (red/NO); alarm Reset |
| 1 | Intrinsically safe barriers, discrete , 2 channel |
| 4 | Intrinsically safe pump relays |
| 1 | Lightning arrestor; 208 volt, 4 wire with bracket |
| 2 | Coyote 208VAC 1/3-10hp pump controller, chassis mount |
| | Relay logic and timers as required |
| | Engraved laminated legends for all door mounted devices |
| | Terminal blocks for external connections and fusing as required |
| | Color-coded wiring with wire markers at all terminations |
| | Fully documented, assembled, wired, programmed and pre-shipment test |
| 1 | UL 698A serialized label |
| 1 | Panel heater, 120VAC, 250Watt with thermostat |
| 1 | GFIC 20A outlet with and weatherproof cover; mounted adjacent to control panel |

(1) Sensaphone 2000 autodialer w/ phone line surge suppression
for monitoring/call out of alarm conditions, monitoring SVE & sparge motor run time

Trailer

- (1) Trailer enclosure system, 8' wide x 24' long x 8' high
 - Partition wall creating 6' x 6' control/compressor room and 19' x 8' sve/stripper room
 - Includes equipment installation and wiring**
 - 8" steel I beam frame
 - Plywood floor decking, aluminum & fiberglass exterior
 - R-5 fiberglass wall and ceiling insulation with plywood interior
 - Tandem 5,000 lb axles, 10,000lb GVWR, radial tires
 - 2" coupler with jack stand
 - Electric brakes, ICC lighting
 - Polyurethane bed liner floor coating throughout trailer
 - Floor sump with high level switch
 - (2) Explosion proof electric convection heater w/ thermostat
 - (1) Explosion vent fan with inlet and outlet louvers and thermostat
 - (3) Explosion proof incandescent light with wall switch
 - Double rear doors with cam lock and front side door

Control panel will be mounted on the front of the trailer. Piping will be schedule 40 galvanized for air sparge and SVE discharge & PVC schedule 80 for SVE inlet and water. Wiring will be per NEC for Class I, Div I, Group D hazardous environment inside the trailer.